AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0001] with the following rewritten paragraph:

[0001] This application is related to U.S. <u>Pat. No. 6,839,390</u> ~~Application No. (10/055,155), filed 01/23/2002, titled "Voting System for Improving the Performance of Single-User Decoders within an Iterative Multi-User Detection System" <attorney docket number D4607>~~; U.S. <u>Pat. No 7,110,439</u> ~~Application No. (10/105,918), filed 03/25/2002, titled "System for Decreasing Processing Time in an Iterative Multi-User Detector System" <attorney docket number D4608>~~; and U.S. Application No. (10/423655), filed 4/25/03, titled "Deferred Decorrelating Decision-Feedback Detector For Supersaturated Communications" <attorney docket number D4625-US>. Each of these applications is herein incorporated in its entirety by reference for all purposes.

Please replace paragraph [0060] with the following rewritten paragraph:

[0060] The multiuser detection unit **20** outputs a bit (or symbol) stream associated with each interfering signal present on the channel for one data block. Deinterleavers and interleavers (not shown) are optional elements coupled between the MUD **20** and the decoders **40** that are used if the transmitted signals are interleaved, such as the CDMA format. The MUD detector **20** passes either hard decisions <u>or soft decisions</u> in the form of reliability, or confidence, measures to the decoders **40**. The reliability measures are presented with one associated with each symbol of each user to the bank of decoders **40**. If the signals were transmitted with interleaving, the reliability measures from the MUD **20** are first passed through a deinterleaver (not shown) and passed on in shuffled form to the decoder **40**. Shuffling refers to processing the same values but changes the placement or presentation of the values. If interleaving was present in the transmitter, an interleaver unit performs interleaving. The time-shuffled conditional probabilities are input back to the MUD section **20**. When the transmitter employs interleaving it changes the presentation of the values but not the values themselves. For example, IS-95 is the North American Cell Phone standard that employs interleaving.

Please replace paragraph [0061] with the following rewritten paragraph:

[0061] In one known variation, there is a bank of error correction decoders **40** that provide soft output or restore values associated with prior probabilities. Viterbi decoders can be used, but generally outputs hard values. The single user decoders calculate <u>values of</u> conditional probabilities, one for each decoded symbol of each user, and output them as confidence values back to the MUD **20**. Soft input soft output decoders, such as MAP or soft-output Viterbi algorithm (SOVA) decoders are examples known in the art. As the output of the decoders **40** is taken here for discussion purposes to be soft values, it should be understood that the hard decision is optional depending upon the application and the implementation requirements.

Please replace paragraph [0066] with the following rewritten paragraph:

[0066] Referring to **Figure 2**, which shows one embodiment the present invention which incorporates a high complexity MUD **100** on the first iteration but then standard low complexity MUD **120** processing for subsequent iterations. The first iteration is the most important in order to establish initial accuracy, and therefore uses the higher complexity MUD **100**, with better performing algorithms such as M-algorithm, T-algorithm, FANO or reduced state Viterbi. For the remaining iterations of the Turbo-MUD, it will suffice to switch over to any of the lower complexity linear MUD algorithms **120**, which allow the present invention to operate in real-time and with lower complexity computational processing. The first iteration high complexity MUD **100** ~~jumps~~ <u>jump</u> starts the system in obtaining a 'better' starting foundation for <u>subsequent processing</u> ~~building decision trees~~. It is within the scope of the invention to use any tree pruned search for the high complexity MUD **100** in order to do good suboptimal searching to tree prune without having to do every search.

Please replace paragraph [0069] with the following rewritten paragraph:

[0069] The high complexity MUD **100** outputs, for each user, a bit (or symbol) stream or a stream of soft values corresponding to the probability that a certain bit or symbol was sent by each user. The high complexity <u>MUD</u> is coupled to the parameter estimation unit **90** for

obtaining information on the received signals. An optional deinterleaver **105** is employed for transmission received in an interleaved format, such as CDMA. These symbol streams are sent to a bank of error correcting decoders **110,** which can be optionally interleaved **115** before being passed to the low complexity MUD **120**. In one embodiment of this invention, decoders **110** provides [[a]] soft outputs in the form of a stream of values corresponding to the probability that a certain bit or symbol was transmitted within each interfering user's signal present in the received signal. The soft data streams are passed to the low complexity MUD **120**.

Please replace paragraph [0093] with the following rewritten paragraph:

[0093]   For example, the commonly owned patent applications describing varied forms of multi-user systems are hereby incorporated by reference for all purposes and include U.S. Pat. No. 6,839,390 ~~Application No. (10/055,155), filed 01/23/2002, titled "Voting System for Improving the Performance of Single-User Decoders within an Iterative Multi-User Detection System" <attorney docket number D4607>~~; U.S. Pat. No 7,110,439 ~~Application No. (10/105,918), filed 03/25/2002, titled "System for Decreasing Processing Time in an Iterative Multi-User Detector System" <attorney docket number D4608>~~; and U.S. Application No. (10/423655), filed 4/25/03, titled "Deferred Decorrelating Decision-Feedback Detector for Supersaturated Communications" <attorney docket number D4625-US>.